

SEQUENCE LISTING

<110> Thomason, Arlen
Liu, Benxian

<120> Fibroblast Growth Factor-Like Polypeptides

<130> 99-371

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<170> PatentIn Ver. 2.0

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Gln Ala His Pro Ile Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly
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Gln Val Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu
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gcc cac ctg gag atc agg gag gat ggg acg gtg ggg ggc gct gct gac 363
Ala His Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp

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Asp Gly Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser
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125 130 135
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<213> Homo sapiens

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35 40 45

Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu Glu Ile Arg
50 55 60

Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro Glu Ser Leu
65 70 75 80

Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile Leu Gly Val
85 90 95

Lys Thr Ser Arg Phe Leu Cys Gln Arg Pro Asp Gly Ala Leu Tyr Gly
100 105 110

Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu Leu Leu Leu
115 120 125

Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly Leu Pro Leu
130 135 140

His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro Ala Pro Arg Gly
145 150 155 160

Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala Pro Pro Glu
165 170 175

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Leu Leu Leu Ala Val Phe Leu Leu Gly Val Tyr Gln Ala Tyr Pro Ile
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Tyr Leu Tyr Thr Asp Asp Asp Gln Asp Thr Glu Ala His Leu Glu Ile
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Arg Glu Asp Gly Thr Val Val Gly Ala Ala His Arg Ser Pro Glu Ser
65 70 75 80

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85 90 95

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Val Lys Ala Ser Arg Phe Leu Cys Gln Gln Pro Asp Gly Ala Leu Tyr
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Gly Ser Pro His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu Leu Leu
115 120 125

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130 135 140

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145 150 155 160

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165 170 175

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Asp Gln Ala Gly Phe Leu Pro Pro Glu Pro Pro Asp Val Gly Ser Ser
180 185 190

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195 200 205

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35 40 45

Tyr Leu Tyr Thr Asp Asp Asp Gln Asp Thr Glu Ala His Leu Glu Ile
50 55 60

Arg Glu Asp Gly Thr Val Val Gly Ala Ala His Arg Ser Pro Glu Ser
65 70 75 80

Leu Leu Glu Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile Leu Gly
85 90 95

Val Lys Ala Ser Arg Phe Leu Cys Gln Gln Pro Asp Gly Ala Leu Tyr
100 105 110

Gly Ser Pro His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu Leu Leu
115 120 125

Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly Leu Pro
130 135 140

Leu Arg Leu Pro Gln Lys Asp Ser Pro Asn Gln Asp Ala Thr Ser Trp
145 150 155 160

Gly Pro Val Arg Phe Leu Pro Met Pro Gly Leu Leu His Glu Pro Gln
165 170 175

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<213> Homo sapiens

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Pro Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln
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Ile Leu Gly Val Lys Thr Ser Arg Phe Leu Cys Gln Arg Pro Asp Gly
65 70 75 80

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
85 90 95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
100 105 110

Gly Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro
115 120 125

Ala Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro
130 135 140

Ala Pro Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
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Pro Ser Tyr Ala Ser
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35 40 45

Pro Glu Ser Leu Leu Glu Leu Lys Ala Leu Lys Pro Gly Val Ile Gln
50 55 60

Ile Leu Gly Val Lys Ala Ser Arg Phe Leu Cys Gln Gln Pro Asp Gly
65 70 75 80

Ala Leu Tyr Gly Ser Pro His Phe Asp Pro Glu Ala Cys Ser Phe Arg
85 90 95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
100 105 110

Gly Leu Pro Leu Arg Leu Pro Gln Lys Asp Ser Pro Asn Gln Asp Ala

115 120 125
Thr Ser Trp Gly Pro Val Arg Phe Leu Pro Met Pro Gly Leu Leu His
130 135 140

Glu Pro Gln Asp Gln Ala Gly Phe Leu Pro Pro Glu Pro Pro Asp Val
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Pro Ser Tyr Ala Ser
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35 40 45

Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser Ala Glu
50 55 60

Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln Tyr Leu
65 70 75 80

Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr Pro Asn Glu
85 90 95

Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn Thr Tyr
100 105 110

Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu Lys Lys
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35 40 45

Phe Ser Lys Val Arg Phe Cys Ser Gly Arg Lys Arg Pro Val Arg Arg
50 55 60

Arg Pro Glu Pro Gln Leu Lys Gly Ile Val Thr Arg Leu Phe Ser Gln
65 70 75 80

Gln Gly Tyr Phe Leu Gln Met His Pro Asp Gly Thr Ile Asp Gly Thr
85 90 95

Lys Asp Glu Asn Ser Asp Tyr Thr Leu Phe Asn Leu Ile Pro Val Gly
100 105 110

Leu Arg Val Val Ala Ile Gln Gly Val Lys Ala Ser Leu Tyr Val Ala
115 120 125

Met Asn Gly Glu Gly Tyr Leu Tyr Ser Ser Asp Val Phe Thr Pro Glu
130 135 140

Cys Lys Phe Lys Glu Ser Val Phe Glu Asn Tyr Tyr Val Ile Tyr Ser
145 150 155 160

Ser Thr Leu Tyr Arg Gln Gln Glu Ser Gly Arg Ala Trp Phe Leu Gly
165 170 175

Leu Asn Lys Glu Gly Gln Ile Met Lys Gly Asn Arg Val Lys Lys Thr
180 185 190

Lys Pro Ser Ser His Phe Val Pro Lys Pro Ile Glu Val Cys Met Tyr
195 200 205

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Asp Ser Thr

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<212> PRT

<213> Homo sapiens

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35 40 45

Ser Lys Val Arg Ile Phe Gly Leu Lys Lys Arg Arg Leu Arg Arg Gln
50 55 60

Asp Pro Gln Leu Lys Gly Ile Val Thr Arg Leu Tyr Cys Arg Gln Gly
65 70 75 80

Tyr Tyr Leu Gln Met His Pro Asp Gly Ala Leu Asp Gly Thr Lys Asp

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90

95

Asp Ser Thr Asn Ser Thr Leu Phe Asn Leu Ile Pro Val Gly Leu Arg
100 105 110

Val Val Ala Ile Gln Gly Val Lys Thr Gly Leu Tyr Ile Ala Met Asn
115 120 125

Gly Glu Gly Tyr Leu Tyr Pro Ser Glu Leu Phe Thr Pro Glu Cys Lys
130 135 140

Phe Lys Glu Ser Val Phe Glu Asn Tyr Tyr Val Ile Tyr Ser Ser Met
145 150 155 160

Leu Tyr Arg Gln Gln Glu Ser Gly Arg Ala Trp Phe Leu Gly Leu Asn
165 170 175

Lys Glu Gly Gln Ala Met Lys Gly Asn Arg Val Lys Lys Thr Lys Pro
180 185 190

Ala Ala His Phe Leu Pro Lys Pro Leu Glu Val Ala Met Tyr Arg Glu
195 200 205

Pro Ser Leu His Asp Val Gly Glu Thr Val Pro Lys Pro Gly Val Thr
210 215 220

Pro Ser Lys Ser Thr Ser Ala Ser Ala Ile Met Asn Gly Gly Lys Pro
225 230 235 240

Val Asn Lys Ser Lys Thr Thr
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<212> PRT

<213> Homo sapiens

<400> 17

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Tyr Cys Lys Asn Gly Gly Phe Phe Leu Arg Ile His Pro Asp Gly Arg
35 40 45

Val Asp Gly Val Arg Glu Lys Ser Asp Pro His Ile Lys Leu Gln Leu
50 55 60

Gln Ala Glu Glu Arg Gly Val Val Ser Ile Lys Gly Val Cys Ala Asn
65 70 75 80

Arg Tyr Leu Ala Met Lys Glu Asp Gly Arg Leu Leu Ala Ser Lys Cys
85 90 95

Val Thr Asp Glu Cys Phe Phe Glu Arg Leu Glu Ser Asn Asn Tyr
100 105 110

Asn Thr Tyr Arg Ser Arg Lys Tyr Thr Ser Trp Tyr Val Ala Leu Lys
115 120 125

Arg Thr Gly Gln Tyr Lys Leu Gly Ser Lys Thr Gly Pro Gly Gln Lys
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Pro Ala Ala Gly Pro Gly Ala Arg Leu Arg Arg Asp Ala Gly Gly Arg
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35 40 45

Tyr Cys Ala Thr Lys Tyr His Leu Gln Leu His Pro Ser Gly Arg Val
50 55 60

Asn Gly Ser Leu Glu Asn Ser Ala Tyr Ser Ile Leu Glu Ile Thr Ala
65 70 75 80

Val Glu Val Gly Ile Val Ala Ile Arg Gly Leu Phe Ser Gly Arg Tyr
85 90 95

Leu Ala Met Asn Lys Arg Gly Arg Leu Tyr Ala Ser Glu His Tyr Ser
100 105 110

Ala Glu Cys Glu Phe Val Glu Arg Ile His Glu Leu Gly Tyr Asn Thr
115 120 125

Tyr Ala Ser Arg Leu Tyr Arg Thr Val Ser Ser Thr Pro Gly Ala Arg
130 135 140

Arg Gln Pro Ser Ala Glu Arg Leu Trp Tyr Val Ser Val Asn Gly Lys
145 150 155 160

Gly Arg Pro Arg Arg Gly Phe Lys Thr Arg Arg Thr Gln Lys Ser Ser
165 170 175

Leu Phe Leu Pro Arg Val Leu Asp His Arg Asp His Glu Met Val Arg
180 185 190

Gln Leu Gln Ser Gly Leu Pro Arg Pro Pro Gly Lys Gly Val Gln Pro
195 200 205

Arg Arg Arg Arg Gln Lys Gln Ser Pro Asp Asn Leu Glu Pro Ser His
210 215 220

Val Gln Ala Ser Arg Leu Gly Ser Gln Leu Glu Ala Ser Ala His
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<212> PRT

<213> Homo sapiens

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Thr Ala Pro Asn Gly Thr Leu Glu Ala Glu Leu Glu Arg Arg Trp Glu
35 40 45

Ser Leu Val Ala Leu Ser Leu Ala Arg Leu Pro Val Ala Ala Gln Pro
50 55 60

Lys Glu Ala Ala Val Gln Ser Gly Ala Gly Asp Tyr Leu Leu Gly Ile
65 70 75 80

Lys Arg Leu Arg Arg Leu Tyr Cys Asn Val Gly Ile Gly Phe His Leu

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95

Gln Ala Leu Pro Asp Gly Arg Ile Gly Gly Ala His Ala Asp Thr Arg
100 105 110

Asp Ser Leu Leu Glu Leu Ser Pro Val Glu Arg Gly Val Val Ser Ile
115 120 125

Phe Gly Val Ala Ser Arg Phe Phe Val Ala Met Ser Ser Lys Gly Lys
130 135 140

Leu Tyr Gly Ser Pro Phe Phe Thr Asp Glu Cys Thr Phe Lys Glu Ile
145 150 155 160

Leu Leu Pro Asn Asn Tyr Asn Ala Tyr Glu Ser Tyr Lys Tyr Pro Gly
165 170 175

Met Phe Ile Ala Leu Ser Lys Asn Gly Lys Thr Lys Lys Gly Asn Arg
180 185 190

Val Ser Pro Thr Met Lys Val Thr His Phe Leu Pro Arg Leu
195 200 205

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<212> PRT

<213> Homo sapiens

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20 25 30

Gly Pro Ala Ala Thr Asp Arg Asn Pro Ile Gly Ser Ser Ser Arg Gln
35 40 45

Ser Ser Ser Ala Met Ser Ser Ser Ala Ser Ser Ser Pro Ala
50 55 60

Ala Ser Leu Gly Ser Gln Gly Ser Gly Leu Glu Gln Ser Ser Phe Gln
65 70 75 80

Trp Ser Pro Ser Gly Arg Arg Thr Gly Ser Leu Tyr Cys Arg Val Gly
85 90 95

Ile Gly Phe His Leu Gln Ile Tyr Pro Asp Gly Lys Val Asn Gly Ser
100 105 110

His Glu Ala Asn Met Leu Ser Val Leu Glu Ile Phe Ala Val Ser Gln
115 120 125

Gly Ile Val Gly Ile Arg Gly Val Phe Ser Asn Lys Phe Leu Ala Met
130 135 140

Ser Lys Lys Gly Lys Leu His Ala Ser Ala Lys Phe Thr Asp Asp Cys
145 150 155 160

Lys Phe Arg Glu Arg Phe Gln Glu Asn Ser Tyr Asn Thr Tyr Ala Ser
165 170 175

Ala Ile His Arg Thr Glu Lys Thr Gly Arg Glu Trp Tyr Val Ala Leu
180 185 190

Asn Lys Arg Gly Lys Ala Lys Arg Gly Cys Ser Pro Arg Val Lys Pro
195 200 205

Gln His Ile Ser Thr His Phe Leu Pro Arg Phe Lys Gln Ser Glu Gln
210 215 220

Pro Glu Leu Ser Phe Thr Val Thr Val Pro Glu Lys Lys Asn Pro Pro
225 230 235 240

Ser Pro Ile Lys Ser Lys Ile Pro Leu Ser Ala Pro Arg Lys Asn Thr
245 250 255

Asn Ser Val Lys Tyr Arg Leu Lys Phe Arg Phe Gly
260 265

<210> 21
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<213> Homo sapiens

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Gly Met Val Val Pro Ser Pro Ala Gly Thr Arg Ala Asn Asn Thr Leu
35 40 45

Leu Asp Ser Arg Gly Trp Gly Thr Leu Leu Ser Arg Ser Arg Ala Gly
50 55 60

Leu Ala Gly Glu Ile Ala Gly Val Asn Trp Glu Ser Gly Tyr Leu Val
65 70 75 80

Gly Ile Lys Arg Gln Arg Arg Leu Tyr Cys Asn Val Gly Ile Gly Phe
85 90 95

His Leu Gln Val Leu Pro Asp Gly Arg Ile Ser Gly Thr His Glu Glu
100 105 110

Asn Pro Tyr Ser Leu Leu Glu Ile Ser Thr Val Glu Arg Gly Val Val
115 120 125

Ser Leu Phe Gly Val Arg Ser Ala Leu Phe Val Ala Met Asn Ser Lys
130 135 140

Gly Arg Leu Tyr Ala Thr Pro Ser Phe Gln Glu Glu Cys Lys Phe Arg
145 150 155 160

Glu Thr Leu Leu Pro Asn Asn Tyr Asn Ala Tyr Glu Ser Asp Leu Tyr
165 170 175

Gln Gly Thr Tyr Ile Ala Leu Ser Lys Tyr Gly Arg Val Lys Arg Gly
180 185 190

Ser Lys Val Ser Pro Ile Met Thr Val Thr His Phe Leu Pro Arg Ile
195 200 205

<210> 22
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<212> PRT
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Asn Asp Met Thr Pro Glu Gln Met Ala Thr Asn Val Asn Cys Ser Ser

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40

45

Pro Glu Arg His Thr Arg Ser Tyr Asp Tyr Met Glu Gly Gly Asp Ile
50 55 60

Arg Val Arg Arg Leu Phe Cys Arg Thr Gln Trp Tyr Leu Arg Ile Asp
65 70 75 80

Lys Arg Gly Lys Val Lys Gly Thr Gln Glu Met Lys Asn Asn Tyr Asn
85 90 95

Ile Met Glu Ile Arg Thr Val Ala Val Gly Ile Val Ala Ile Lys Gly
100 105 110

Val Glu Ser Glu Phe Tyr Leu Ala Met Asn Lys Glu Gly Lys Leu Tyr
115 120 125

Ala Lys Lys Glu Cys Asn Glu Asp Cys Asn Phe Lys Glu Leu Ile Leu
130 135 140

Glu Asn His Tyr Asn Thr Tyr Ala Ser Ala Lys Trp Thr His Asn Gly
145 150 155 160

Gly Glu Met Phe Val Ala Leu Asn Gln Lys Gly Ile Pro Val Arg Gly
165 170 175

Lys Lys Thr Lys Lys Glu Gln Lys Thr Ala His Phe Leu Pro Met Ala
180 185 190

Ile Thr

<210> 23

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<213> Homo sapiens

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20 25 30

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35 40 45

Pro Ala Val Thr Asp Leu Asp His Leu Lys Gly Ile Leu Arg Arg Arg
50 55 60

Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Glu Ile Phe Pro Asn Gly
65 70 75 80

Thr Ile Gln Gly Thr Arg Lys Asp His Ser Arg Phe Gly Ile Leu Glu
85 90 95

Phe Ile Ser Ile Ala Val Gly Leu Val Ser Ile Arg Gly Val Asp Ser
100 105 110

Gly Leu Tyr Leu Gly Met Asn Glu Lys Gly Glu Leu Tyr Gly Ser Glu
115 120 125

Lys Leu Thr Gln Glu Cys Val Phe Arg Glu Gln Phe Glu Glu Asn Trp
130 135 140

Tyr Asn Thr Tyr Ser Ser Asn Leu Tyr Lys His Val Asp Thr Gly Arg
145 150 155 160

Arg Tyr Tyr Val Ala Leu Asn Lys Asp Gly Thr Pro Arg Glu Gly Thr
165 170 175

Arg Thr Lys Arg His Gln Lys Phe Thr His Phe Leu Pro Arg Pro Val
180 185 190

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195 200 205

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35 40 45

Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser Ala Glu
50 55 60

Ser Ala Gly Glu Val Tyr Ile Lys Gly Thr Glu Thr Gly Gln Tyr Leu
65 70 75 80

Ala Met Asp Thr Glu Gly Leu Leu Tyr Gly Ser Gln Thr Pro Asn Glu
85 90 95

Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn Thr Tyr
100 105 110

Thr Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu Lys Lys
115 120 125

Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln Lys Ala
130 135 140

Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp
145 150 155

<210> 25

<211> 245

<212> PRT

<213> Mus musculus

<400> 25

Met Thr Ala Ala Ile Ala Ser Ser Leu Ile Arg Gln Lys Arg Gln Ala
1 5 10 15

Arg Glu Arg Glu Lys Ser Asn Ala Cys Lys Cys Val Ser Ser Pro Ser
20 25 30

Lys Gly Lys Thr Ser Cys Asp Lys Asn Lys Leu Asn Val Phe Ser Arg
35 40 45

Val Lys Leu Phe Gly Ser Lys Lys Arg Arg Arg Arg Pro Glu Pro
50 55 60

Gln Leu Lys Gly Ile Val Thr Lys Leu Tyr Ser Arg Gln Gly Tyr His
65 70 75 80

Leu Gln Leu Gln Ala Asp Gly Thr Ile Asp Gly Thr Lys Asp Glu Asp
85 90 95

Ser Thr Tyr Thr Leu Phe Asn Leu Ile Pro Val Gly Leu Arg Val Val

100

105

110

Ala Ile Gln Gly Val Gln Thr Lys Leu Tyr Leu Ala Met Asn Ser Glu
115 120 125

Gly Tyr Leu Tyr Thr Ser Glu His Phe Thr Pro Glu Cys Lys Phe Lys
130 135 140

Glu Ser Val Phe Glu Asn Tyr Tyr Val Thr Tyr Ser Ser Met Ile Tyr
145 150 155 160

Arg Gln Gln Gln Ser Gly Arg Gly Trp Tyr Leu Gly Leu Asn Lys Glu
165 170 175

Gly Glu Ile Met Lys Gly Asn His Val Lys Lys Asn Lys Pro Ala Ala
180 185 190

His Phe Leu Pro Lys Pro Leu Lys Val Ala Met Tyr Lys Glu Pro Ser
195 200 205

Leu His Asp Leu Thr Glu Phe Ser Arg Ser Gly Ser Gly Thr Pro Thr
210 215 220

Lys Ser Arg Ser Val Ser Gly Val Leu Asn Gly Gly Lys Ser Met Ser
225 230 235 240

His Asn Glu Ser Thr
245

<210> 26

<211> 247

<212> PRT

<213> Mus musculus

<400> 26

Met Ala Ala Ala Ile Ala Ser Gly Leu Ile Arg Gln Lys Arg Gln Ala
1 5 10 15

Arg Glu Gln His Trp Asp Arg Pro Ser Ala Ser Arg Arg Arg Ser Ser
20 25 30

Pro Ser Lys Asn Arg Gly Leu Phe Asn Gly Asn Leu Val Asp Ile Phe
35 40 45

Ser Lys Val Arg Ile Phe Gly Leu Lys Lys Arg Arg Leu Arg Arg Gln
50 55 60

Asp Pro Gln Leu Lys Gly Ile Val Thr Arg Leu Tyr Cys Arg Gln Gly
65 70 75 80

Tyr Tyr Leu Gln Met His Pro Asp Gly Ala Leu Asp Gly Thr Lys Asp
85 90 95

Asp Ser Thr Asn Ser Thr Leu Phe Asn Leu Ile Pro Val Gly Leu Arg
100 105 110

Val Val Ala Ile Gln Gly Val Lys Thr Gly Leu Tyr Ile Ala Met Asn
115 120 125

Gly Glu Gly Tyr Leu Tyr Pro Ser Glu Leu Phe Thr Pro Glu Cys Lys
130 135 140

Phe Lys Glu Ser Val Phe Glu Asn Tyr Tyr Val Ile Tyr Ser Ser Met
145 150 155 160

Leu Tyr Arg Gln Gln Glu Ser Gly Arg Ala Trp Phe Leu Gly Leu Asn
165 170 175

Lys Glu Gly Gln Val Met Lys Gly Asn Arg Val Lys Lys Thr Lys Pro
180 185 190

Ala Ala His Phe Leu Pro Lys Pro Leu Glu Val Ala Met Tyr Arg Glu
195 200 205

Pro Ser Leu His Asp Val Gly Glu Thr Val Pro Lys Ala Gly Val Thr
210 215 220

Pro Ser Lys Ser Thr Ser Ala Ser Ala Ile Met Asn Gly Gly Lys Pro
225 230 235 240

Val Asn Lys Cys Lys Thr Thr
245

<210> 27

<211> 154

<212> PRT

<213> Mus musculus

<400> 27

Met Ala Ala Ser Gly Ile Thr Ser Leu Pro Ala Leu Pro Glu Asp Gly
1 5 10 15

Gly Ala Ala Phe Pro Pro Gly His Phe Lys Asp Pro Lys Arg Leu Tyr
20 25 30

Cys Lys Asn Gly Gly Phe Phe Leu Arg Ile His Pro Asp Gly Arg Val
35 40 45

Asp Gly Val Arg Glu Lys Ser Asp Pro His Val Lys Leu Gln Leu Gln
50 55 60

Ala Glu Glu Arg Gly Val Val Ser Ile Lys Gly Val Cys Ala Asn Arg
65 70 75 80

Tyr Leu Ala Met Lys Glu Asp Gly Arg Leu Leu Ala Ser Lys Cys Val
85 90 95

Thr Glu Glu Cys Phe Phe Glu Arg Leu Glu Ser Asn Asn Tyr Asn
100 105 110

Thr Tyr Arg Ser Arg Lys Tyr Ser Ser Trp Tyr Val Ala Leu Lys Arg
115 120 125

Thr Gly Gln Tyr Lys Leu Gly Ser Lys Thr Gly Pro Gly Gln Lys Ala
130 135 140

Ile Leu Phe Leu Pro Met Ser Ala Lys Ser
145 150

<210> 28
<211> 245
<212> PRT
<213> Mus musculus

<400> 28
Met Gly Leu Ile Trp Leu Leu Leu Ser Leu Leu Glu Pro Ser Trp
1 5 10 15

Pro Thr Thr Gly Pro Gly Thr Arg Leu Arg Arg Asp Ala Gly Gly Arg
20 25 30

Gly Gly Val Tyr Glu His Leu Gly Gly Ala Pro Arg Arg Arg Lys Leu
35 40 45

Tyr Cys Ala Thr Lys Tyr His Leu Gln Leu His Pro Ser Gly Arg Val
50 55 60

Asn Gly Ser Leu Glu Asn Ser Ala Tyr Ser Ile Leu Glu Ile Thr Ala
65 70 75 80

Val Glu Val Gly Val Val Ala Ile Lys Gly Leu Phe Ser Gly Arg Tyr

85

90

95

Leu Ala Met Asn Lys Arg Gly Arg Leu Tyr Ala Ser Asp His Tyr Asn
100 105 110

Ala Glu Cys Glu Phe Val Glu Arg Ile His Glu Leu Gly Tyr Asn Thr
115 120 125

Tyr Ala Ser Arg Leu Tyr Arg Thr Gly Ser Ser Gly Pro Gly Ala Gln
130 135 140

Arg Gln Pro Gly Ala Gln Arg Pro Trp Tyr Val Ser Val Asn Gly Lys
145 150 155 160

Gly Arg Pro Arg Arg Gly Phe Lys Thr Arg Arg Thr Gln Lys Ser Ser
165 170 175

Leu Phe Leu Pro Arg Val Leu Gly His Lys Asp His Glu Met Val Arg
180 185 190

Leu Leu Gln Ser Ser Gln Pro Arg Ala Pro Gly Glu Gly Ser Gln Pro
195 200 205

Arg Gln Arg Arg Gln Lys Lys Gln Ser Pro Gly Asp His Gly Lys Met
210 215 220

Glu Thr Leu Ser Thr Arg Ala Thr Pro Ser Thr Gln Leu His Thr Gly
225 230 235 240

Gly Leu Ala Val Ala
245

<210> 29

<211> 202

<212> PRT

<213> Mus musculus

<400> 29

Met Ala Lys Arg Gly Pro Thr Thr Gly Thr Leu Leu Pro Arg Val Leu
1 5 10 15

Leu Ala Leu Val Val Ala Leu Ala Asp Arg Gly Thr Ala Ala Pro Asn
20 25 30

Gly Thr Arg His Ala Glu Leu Gly His Gly Trp Asp Gly Leu Val Ala
35 40 45

Arg Ser Leu Ala Arg Leu Pro Val Ala Ala Gln Pro Pro Gln Ala Ala
50 55 60

Val Arg Ser Gly Ala Gly Asp Tyr Leu Leu Gly Leu Lys Arg Leu Arg
65 70 75 80

Arg Leu Tyr Cys Asn Val Gly Ile Gly Phe His Leu Gln Val Leu Pro
85 90 95

Asp Gly Arg Ile Gly Gly Val His Ala Asp Thr Arg Asp Ser Leu Leu
100 105 110

Glu Leu Ser Pro Val Gln Arg Gly Val Val Ser Ile Phe Gly Val Ala
115 120 125

Ser Arg Phe Phe Val Ala Met Ser Ser Arg Gly Lys Leu Phe Gly Val
130 135 140

Pro Phe Phe Thr Asp Glu Cys Lys Phe Lys Glu Ile Leu Leu Pro Asn
145 150 155 160

Asn Tyr Asn Ala Tyr Glu Ala Tyr Ala Tyr Pro Gly Met Phe Met Ala
165 170 175

Leu Ser Lys Asn Gly Arg Thr Lys Lys Gly Asn Arg Val Ser Pro Thr
180 185 190

Met Lys Val Thr His Phe Leu Pro Arg Leu
195 200

<210> 30

<211> 264

<212> PRT

<213> Mus musculus

<400> 30

Met Ser Leu Ser Leu Leu Phe Leu Ile Phe Cys Ser His Leu Ile His
1 5 10 15

Ser Ala Tyr Ala His Gly Glu Lys Arg Leu Thr Pro Glu Gly Gln Pro
20 25 30

Ala Pro Pro Arg Asn Pro Gly Asp Ser Ser Gly Ser Arg Gly Arg Ser
35 40 45

Ser Ala Thr Phe Ser Ser Ser Ala Ser Ser Pro Val Ala Ala Ser
50 55 60

Pro Gly Ser Gln Gly Ser Gly Ser Glu His Ser Ser Phe Gln Trp Ser
65 70 75 80

Pro Ser Gly Arg Arg Thr Gly Ser Leu Tyr Cys Arg Val Gly Ile Gly
85 90 95

Phe His Leu Gln Ile Tyr Pro Asp Gly Lys Val Asn Gly Ser His Glu
100 105 110

Ala Ser Val Leu Ser Ile Leu Glu Ile Phe Ala Val Ser Gln Gly Ile
115 120 125

Val Gly Ile Arg Gly Val Phe Ser Asn Lys Phe Leu Ala Met Ser Lys
130 135 140

Lys Gly Lys Leu His Ala Ser Ala Lys Phe Thr Asp Asp Cys Lys Phe
145 150 155 160

Arg Glu Arg Phe Gln Glu Asn Ser Tyr Asn Thr Tyr Ala Ser Ala Ile
165 170 175

His Arg Thr Glu Lys Thr Gly Arg Glu Trp Tyr Val Ala Leu Asn Lys
180 185 190

Arg Gly Lys Ala Lys Arg Gly Cys Ser Pro Arg Val Lys Pro Gln His
195 200 205

Val Ser Thr His Phe Leu Pro Arg Phe Lys Gln Ser Glu Gln Pro Glu
210 215 220

Leu Ser Phe Thr Val Thr Val Pro Glu Lys Lys Lys Pro Pro Val Lys
225 230 235 240

Pro Lys Val Pro Leu Ser Gln Pro Arg Arg Ser Pro Ser Pro Val Lys
245 250 255

Tyr Arg Leu Lys Phe Arg Phe Gly
260

<210> 31

<211> 208

<212> PRT

<213> Mus musculus

<400> 31

Met Ala Leu Gly Gln Arg Leu Phe Ile Thr Met Ser Arg Gly Ala Gly

1

5

10

15

Arg Val Gln Gly Thr Leu Gln Ala Leu Val Phe Leu Gly Val Leu Val
20 25 30

Gly Met Val Val Pro Ser Pro Ala Gly Ala Arg Ala Asn Gly Thr Leu
35 40 45

Leu Asp Ser Arg Gly Trp Gly Thr Leu Leu Ser Arg Ser Arg Ala Gly
50 55 60

Leu Ala Gly Glu Ile Ser Gly Val Asn Trp Glu Ser Gly Tyr Leu Val
65 70 75 80

Gly Ile Lys Arg Gln Arg Arg Leu Tyr Cys Asn Val Gly Ile Gly Phe
85 90 95

His Leu Gln Val Pro Pro Asp Gly Arg Ile Ser Gly Thr His Glu Glu
100 105 110

Asn Pro Tyr Ser Leu Leu Glu Ile Ser Thr Val Glu Arg Gly Val Val
115 120 125

Ser Leu Phe Gly Val Lys Ser Ala Leu Phe Ile Ala Met Asn Ser Lys
130 135 140

Gly Arg Leu Tyr Thr Thr Pro Ser Phe His Asp Glu Cys Lys Phe Arg
145 150 155 160

Glu Thr Leu Leu Pro Asn Asn Tyr Asn Ala Tyr Glu Ser Asp Leu Tyr
165 170 175

Arg Gly Thr Tyr Ile Ala Leu Ser Lys Tyr Gly Arg Val Lys Arg Gly
180 185 190

Ser Lys Val Ser Pro Ile Met Thr Val Thr His Phe Leu Pro Arg Ile
195 200 205

<210> 32

<211> 194

<212> PRT

<213> Mus musculus

<400> 32

Met Arg Lys Trp Ile Leu Thr Arg Ile Leu Pro Thr Leu Leu Tyr Arg
1 5 10 15

Ser Cys Phe His Leu Val Cys Leu Val Gly Thr Ile Ser Leu Ala Cys
20 25 30

Asn Asp Met Ser Pro Glu Gln Thr Ala Thr Ser Val Asn Cys Ser Ser
35 40 45

Pro Glu Arg His Thr Arg Ser Tyr Asp Tyr Met Glu Gly Gly Asp Ile
50 55 60

Arg Val Arg Arg Leu Phe Cys Arg Thr Gln Trp Tyr Leu Arg Ile Asp
65 70 75 80

Lys Arg Gly Lys Val Lys Gly Thr Gln Glu Met Lys Asn Ser Tyr Asn
85 90 95

Ile Met Glu Ile Arg Thr Val Ala Val Gly Ile Val Ala Ile Lys Gly
100 105 110

Val Glu Ser Glu Tyr Tyr Leu Ala Met Asn Lys Glu Gly Lys Leu Tyr
115 120 125

Ala Lys Lys Glu Cys Asn Glu Asp Cys Asn Phe Lys Glu Leu Ile Leu
130 135 140

Glu Asn His Tyr Asn Thr Tyr Ala Ser Ala Lys Trp Thr His Ser Gly
145 150 155 160

Gly Glu Met Phe Val Ala Leu Asn Gln Lys Gly Ile Pro Val Lys Gly
165 170 175

Lys Lys Thr Lys Lys Glu Gln Lys Thr Ala His Phe Leu Pro Met Ala
180 185 190

Ile Thr

<210> 33
<211> 208
<212> PRT
<213> Mus musculus

<400> 33
Met Ala Pro Leu Gly Glu Val Gly Ser Tyr Phe Gly Val Gln Asp Ala
1 5 10 15

Val Pro Phe Gly Asn Val Pro Val Leu Pro Val Asp Ser Pro Val Leu
20 25 30

Leu Asn Asp His Leu Gly Gln Ser Glu Ala Gly Gly Leu Pro Arg Gly
35 40 45

Pro Ala Val Thr Asp Leu Asp His Leu Lys Gly Ile Leu Arg Arg Arg
50 55 60

Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Glu Ile Phe Pro Asn Gly
65 70 75 80

Thr Ile Gln Gly Thr Arg Lys Asp His Ser Arg Phe Gly Ile Leu Glu
85 90 95

Phe Ile Ser Ile Ala Val Gly Leu Val Ser Ile Arg Gly Val Asp Ser
100 105 110

Gly Leu Tyr Leu Gly Met Asn Glu Lys Gly Glu Leu Tyr Gly Ser Glu
115 120 125

Lys Leu Thr Gln Glu Cys Val Phe Arg Glu Gln Phe Glu Glu Asn Trp
130 135 140

Tyr Asn Thr Tyr Ser Ser Asn Leu Tyr Lys His Val Asp Thr Gly Arg
145 150 155 160

Arg Tyr Tyr Val Ala Leu Asn Lys Asp Gly Thr Pro Arg Glu Gly Thr
165 170 175

Arg Thr Lys Arg His Gln Lys Phe Thr His Phe Leu Pro Arg Pro Val
180 185 190

Asp Pro Asp Lys Val Pro Glu Leu Tyr Lys Asp Ile Leu Ser Gln Ser
195 200 205

<210> 34

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Random primer

with Not I restriction site for first strand cDNA synthesis

<400> 34
ggaaggaaaa aagccggccgc aacannnnnn nnn

33

<210> 35
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for first strand cDNA synthesis

<400> 35
aatccgatgc ccacgttgca gta

23

<210> 36
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer for amplification of cDNA

<400> 36
aaaatcttag accgacgact gtgttt

26

<210> 37
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer for amplification of cDNA

<400> 37
gagtctccgc agcctttga gg

22

<210> 38
<211> 34

<212> DNA

<213> Homo sapiens

<400> 38

actggcgccc gcaggcatca tcccagttga ggag

34

<210> 39

<211> 36

<212> DNA

<213> Homo sapiens

<400> 39

actggtaact cgagggtacc ttagctagcc cccggg

36

<210> 40

<211> 29

<212> PRT

<213> Mus musculus

<400> 40

Met Glu Trp Met Arg Ser Arg Val Gly Thr Leu Gly Leu Trp Val Arg
1 5 10 15

Leu Leu Leu Ala Val Phe Leu Leu Gly Val Tyr Gln Ala

20 25

<210> 41

<211> 28

<212> PRT

<213> Homo sapiens

<400> 41

Met Asp Ser Asp Glu Thr Gly Phe Glu His Ser Gly Leu Trp Val Ser
1 5 10 15

Val Leu Ala Gly Leu Leu Gly Ala Cys Gln Ala

20 25